United States
Department of
Agriculture

Forest
Service

Intermountain
Region

Ogden, Utah

Forest Insect and Disease Conditions

Intermountain Region

1984

FOREST INSECT AND DISEASE CONDITIONS

Intermountain Region

1984

Compiled by

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RESUMÉ OF CONDITIONS

Tree mortality caused by mountain pine beetle increased two-fold over 1983 levels, with approximately 3.3 million dying trees recorded. Increases in beetle-killed trees occurred on most forests.

Spruce beetle populations remained at a low level with only scattered pockets of mortality on the Payette, Uinta, Bridger-Teton, Fishlake, and Manti-LaSal National Forests.

Western spruce budworm activity decreased in extent and intensity throughout southern Idaho and Wyoming, but increased in Utah. Approximately 2.3 million acres were infested this year.

Pine butterfly defoliated ponderosa pine on approximately 2,800 acres on the Boise National Forest, a significant decline from 1983 levels.

Conifer defoliation by Douglas-fir tussock moth during 1984 was not observed. However, small pockets of Douglas-fir mortality, resulting from previous defoliation by this insect in the Owyhee Mountains in southern Idaho, were noted.

Incidence of needle casts intensified in localized areas on Douglas-fir, ponderosa pine, and lodgepole pine.

The occurrence of two stem rust fungi on ponderosa pine was notable. Comandra rust was identified on seedlings and saplings in one small area on the Payette National Forest, and limb rust was found on 60- to 70-year-old pines on the Dixie National Forest.

Dwarf mistletoe suppression projects were conducted on 4,637 acres in 1984. Presuppression surveys were conducted on 192,594 acres to identify incidence and infection severity of this pest.

A severe summer hailstorm caused extensive branch flagging of subalpine fir and lodgepole pine on 7,300 acres near the town of Salmon, Idaho.

Several root diseases and apparent root disease complexes were detected in most conifer species throughout the Region. Among the root disease organisms detected were *Fomes annosus, Armillaria mellea, Inonotus tomentosus,* and *Phaeolus schweinitzii.*

ENTOMOLOGY

Mountain Pine Beetle, *Dendroctonus ponderosae* Hopkins

The Ashley and Wasatch-Cache National Forests in northeastern Utah continued to sustain the largest amount of tree mortality in the Intermountain Region. Mountain pine beetle killed approximately 2.9 million lodgepole and ponderosa pines on the Ashley National Forest and 327,000 lodgepole pines on the Wasatch-Cache National Forest. The infestation on the Wasatch-Cache National Forest will continue to expand into uninfested areas of lodgepole pine. The infestation on the Ashley National Forest is predicted to continue, but most of the susceptible host type is currently infested, and expansion into new areas will not be significant. Elsewhere in Utah, mountain pine beetle populations in ponderosa pine on the Dixie, Fishlake, and Manti-LaSal National Forests remained relatively inactive. A reduction in mountain pine beetle activity in lodgepole pine was noted on the Uinta National Forest.

Mountain pine beetle activity increased in southern Idaho, where approximately 47,000 lodgepole and ponderosa pines were killed. Significant infestations are located near Deadwood Reservoir and along Clear Creek on the Boise National Forest, along Goose Creek on the Payette National Forest, throughout the Big Wood River drainage on the Sawtooth National Forest, and throughout Caribou Basin on the Caribou National Forest. The Targhee National Forest experienced localized reductions in beetle activity throughout the Centennial Mountains; elsewhere on the Targhee National Forest beetle activity increased. On the Challis and Salmon National Forests, small centers of beetle activity are located along the Salmon River between Sunbeam and Clayton and in the Camas Creek drainage respectively.

In Wyoming approximately 30,000 lodgepole pines, a three-fold increase from 1983, were killed on the Bridger-Teton National Forest. The greatest amount of tree mortality is located along the Greys River and throughout the Gros Ventre River drainage.

Specific mortality figures, summarized from aerial detection surveys, are displayed in table 1, and the status of infestations is found in table 2. Locations of major infestations throughout the Region are shown in figure 1.

Douglas-fir Beetle, *Dendroctonus pseudotsugae* Hopkins

Significant Douglas-fir mortality attributed to the Douglas-fir beetle continued on the Bridger-Teton National Forest in western Wyoming; some 3,100 fading trees on 7,000 acres were identified. Mortality is concentrated along Horse Creek and Little Horse Creek, near Hoback Junction, and along the Buffalo Fork near Blackrock Guard Station.

Douglas-fir beetle activity decreased throughout southern Idaho and Utah. Specific mortality figures, as noted by aerial detection surveys, are found in table 1.

Pine Engraver Beetle, *Ips pini* (Say)

Pine engraver beetle activity increased slightly over 1983 levels. Fewer than 900 trees were killed Region-wide. Mortality was concentrated in the Boise Basin and Trinity Creek areas of the Boise National Forest and on adjacent state and private lands. Small, localized infestations were also located in Colson Creek, Owl Creek, and near Granite Mountain Lookout on the Salmon National Forest. Specific mortality figures, as noted by aerial detection surveys, are displayed in table 1.

TABLE 1. Number of Trees Killed by Bark Beetles in Region 4 During 1983-84.

Forest	Year	Mountain Pine Beetle	Trend	Douglas-Fir Beetle	Trend	Ips	Trend	Engelmann Spruce Beetle	Trend
Ashley	1984	2,894,484	Up	—	Down	—	—	—	—
	1983	1,265,514		85		—	—	—	—
Boise	1984	14,016	Up	183	Down	603	Up	—	—
	1983	6,442		351		371		—	—
Bridger-Teton	1984	30,245	Up	3,099	Up	—	—	126	Up
	1983	11,707		—	—	—	—	—	—
Caribou*	1984	13,200	Static	—		—	—	—	—
	1983	14,703		—	—	—	—	—	—
Challis*	1984	1,115	Static	—	—	—	—	—	—
	1983	1,190		—	—	—	—	—	—
Dixie	1984	160	Down	—	—	—	—	—	—
	1983	1,228		—	—	—	—	—	—
Fishlake	1984	—	—	—	Down	—	—	56	Up
	1983	—	—	224		—	—	—	
Manti-LaSal	1984	175	Down	20	Up	—	—	34	Up
	1983	239		—		—	—	—	
Payette	1984	2,868	Down	257	Down	—		70	Up
	1983	5,880		574		—		—	—
Salmon	1984	788	Up	28	Static	301	Static	14	Static
	1983	232		50		354		—	—
Sawtooth	1984	2,934	Static	28	Static	—	—	—	—
	1983	2,260		20		—	—	—	—
Targhee	1984	11,803	Up	48	Up				
	1983	6,749		10		—	—	—	—
Uinta*	1984	139	Down	57	Up	—	—	28	Down
	1983	1,240		7		—	—	63	
Wasatch-Cache*	1984	327,539	Up	—	—	—	—	—	—
	1983	80,317		—	—	—	—	—	—
TOTAL	1984	3,299,466		3,720		904		328	
	1983	1,397,701		1,321		725		63	

*Only portions of Forest flown; actual mortality figures are probably considerably higher.

TABLE 2. Status of mountain pine beetle infestations by state during 1984.

IDAHO

Land Ownership Class	Outbreak Area (Thousand Acres)	Number of Trees (Thousands)
National Forest	44.3	41.6
Other Federal	0.50	0.47
State and Private	5	4.7
TOTAL	49.8	46.7

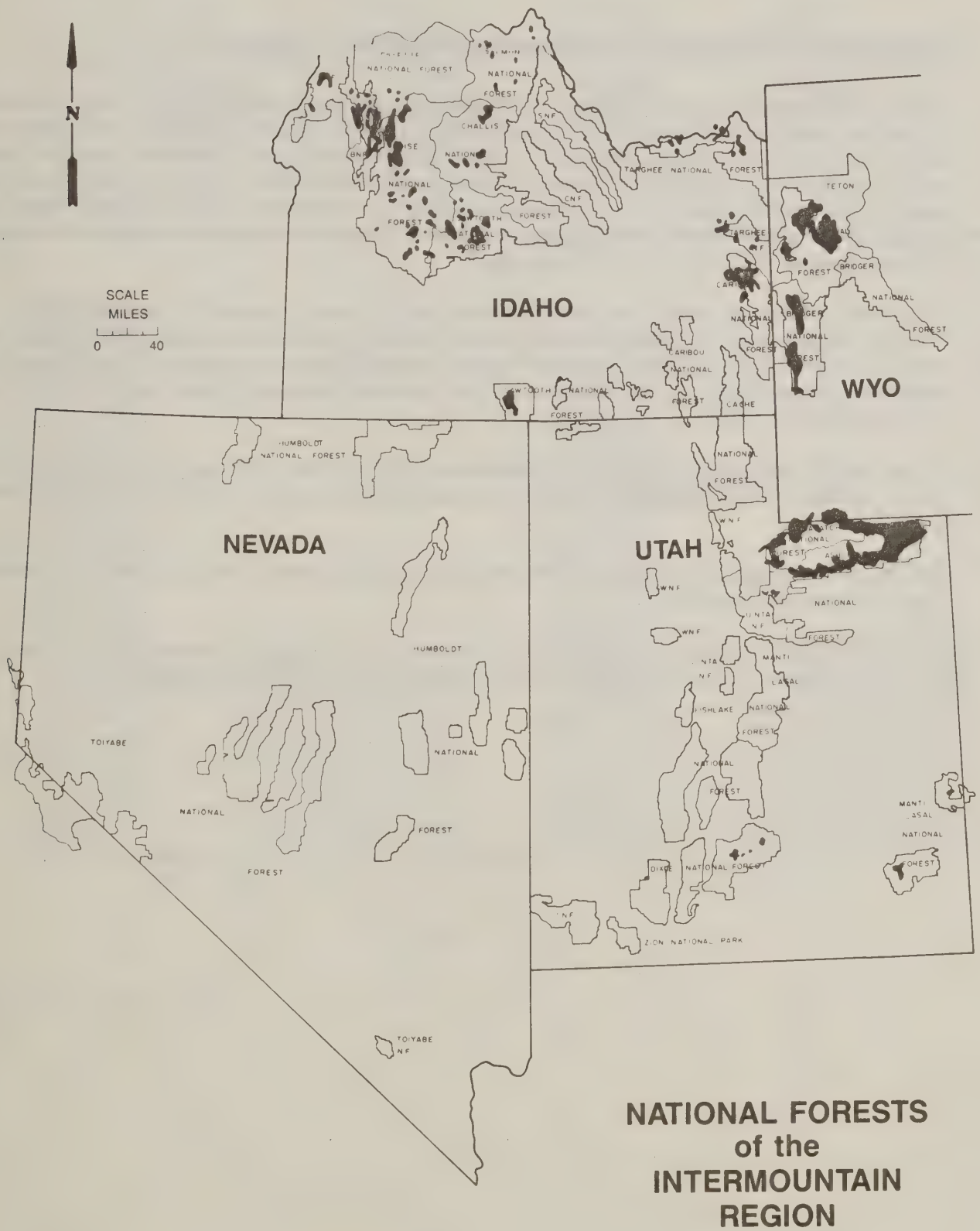
UTAH

National Forest	470.3	3,158.0
Other Federal	2.8	22.2
State and Private	6.8	42.3
TOTAL	479.9	3,222.5

WYOMING

National Forest	20	25.7
Other Federal	2.6	3.3
State and Private	.9	1.2
TOTAL	23.5	30.2

FIGURE 1. Areas infested by mountain pine beetle in Region 4 during 1984.



Spruce Beetle, *Dendroctonus rufipennis* (Kirby)

Regionwide spruce beetle activity remained at a low level. Infestations declined on the Uinta and Manti-LaSal National Forests, but increased slightly on the Bridger-Teton, Payette, and Fishlake National Forests (table 1).

Western Spruce Budworm, *Choristoneura occidentalis* Freeman

Western spruce budworm defoliated Douglas-fir, grand fir, and subalpine fir on approximately 2.3 million acres in the Intermountain Region during 1984 (figures 2 and 3). Generally, defoliation decreased in extent and intensity in Idaho and Wyoming and increased in extent and intensity in Utah. Reductions in defoliation intensity often occurred in areas which have been infested for substantial periods. Increases in defoliation intensity and extent usually occurred in areas only recently infested. Infestations increased in size by expanding into contiguous areas; few new isolated infestations were observed.

In southern Idaho reductions in defoliation occurred in older infestations on the Boise, Caribou, Payette, and Targhee National Forests. Acreage of defoliation was dramatically reduced on the Salmon and Challis National Forests, possibly due to adverse climatic conditions. New areas of defoliation were observed on the Sawtooth National Forest and adjacent state land southeast of Burley.

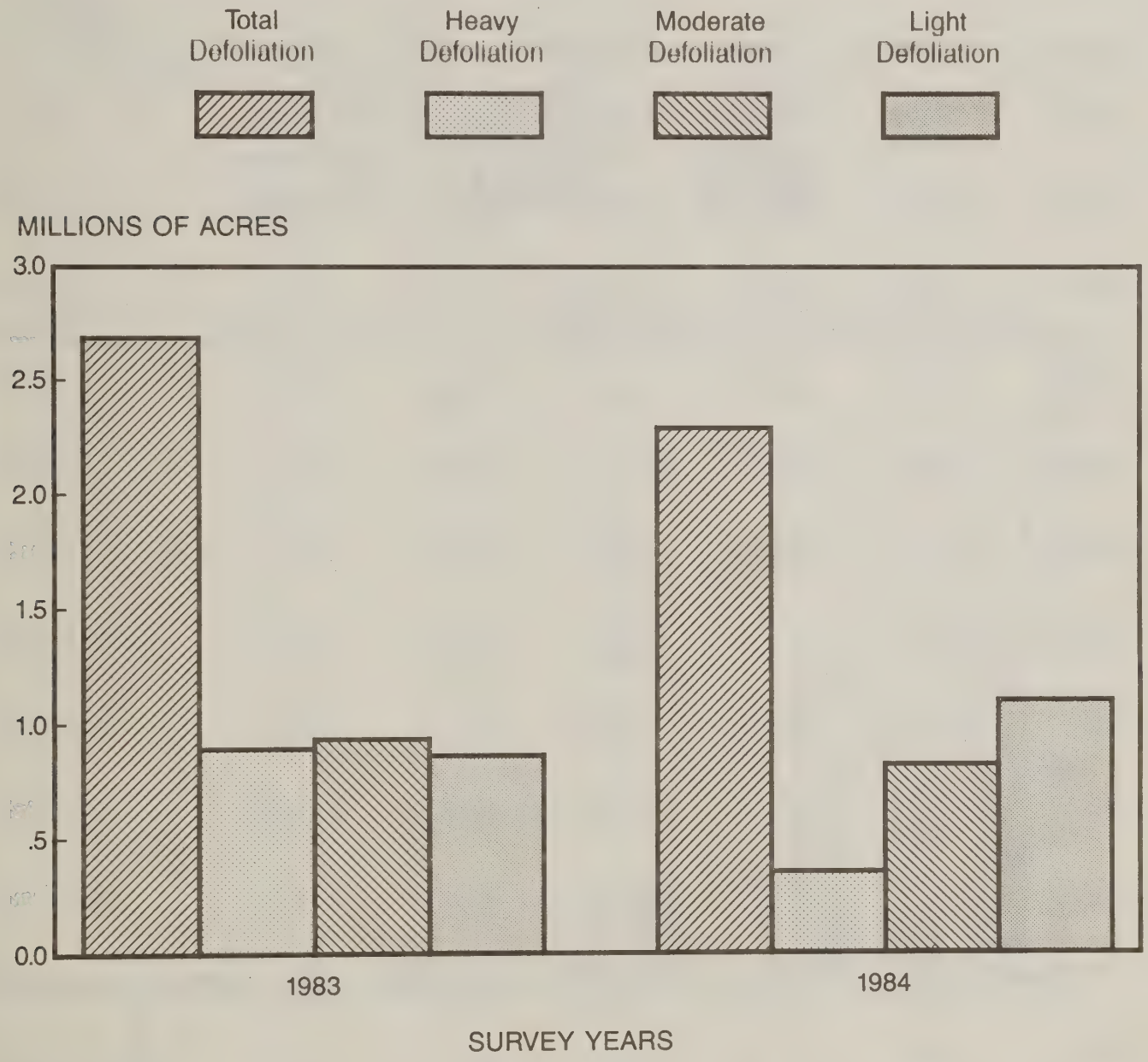
In Utah minor infestation expansions were noted on the Dixie, Fishlake, and Manti-LaSal National Forests. A small decline in infested acreage was identified on the Wasatch-Cache National Forest.

Significant decreases in infestation size and intensity occurred on the Bridger-Teton National Forest in western Wyoming.

Acreage infested by forest is displayed in table 3, and the status of infestations is shown in table 4. Locations of major infestations throughout the Region are identified in figure 4.

FIGURE 2.

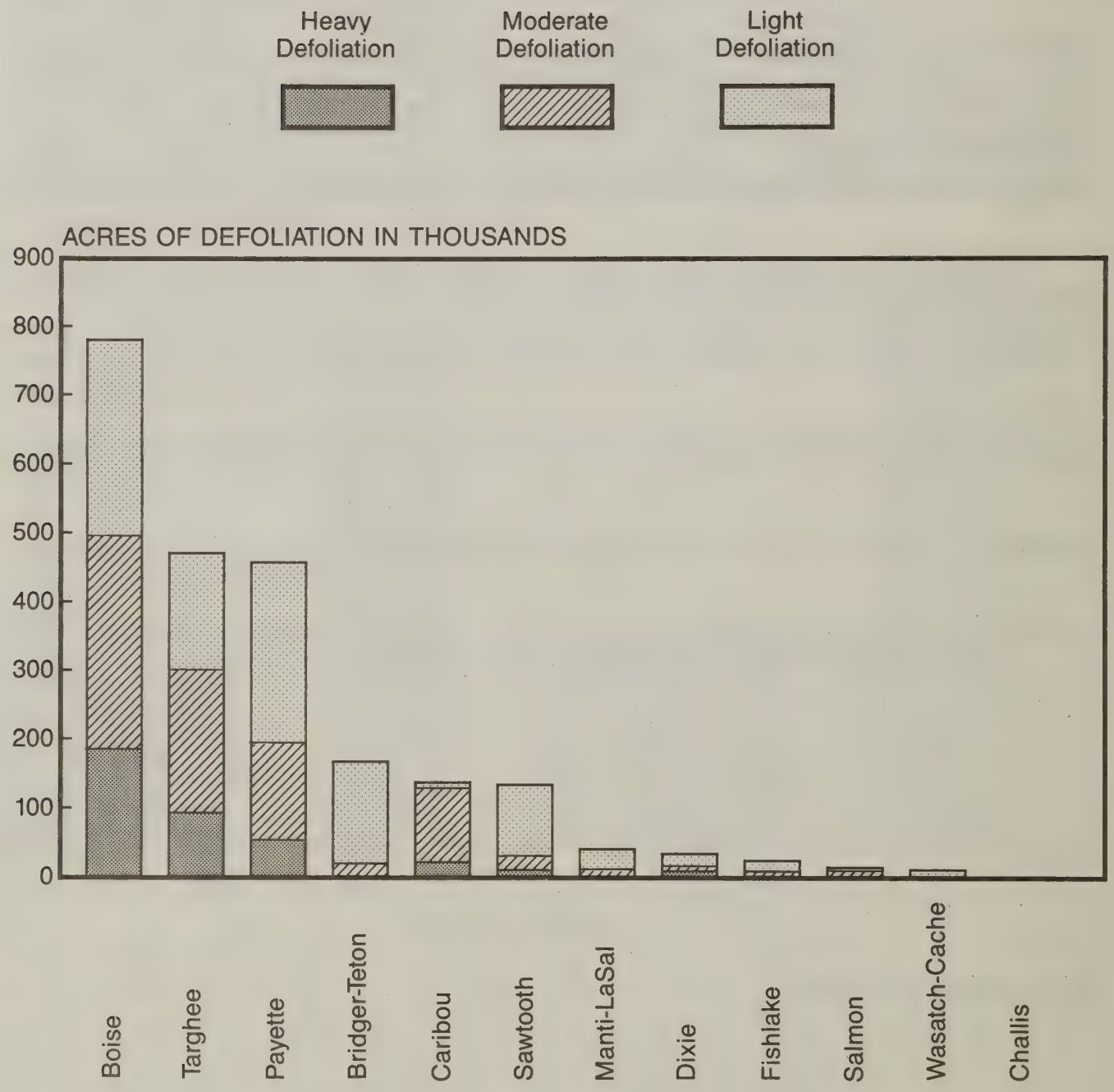
INTENSITY OF VISIBLE DEFOLIATION BY WESTERN SPRUCE BUDWORM IN R-4 DURING 1983 AND 1984*



*As determined by aerial surveys.

FIGURE 3.

VISIBLE DEFOLIATION IN R-4 BY WESTERN SPRUCE BUDWORM*



*As determined by aerial surveys.

TABLE 3. Areas of defoliation by western spruce budworm in Region 4 during 1983-1984 as determined by aerial detection surveys.

Forest (and Adjacent Land)	Year	Defoliation Intensity Light	Moderate	Heavy	Total	Change
Boise	1984	290,942	308,422	186,933	786,357	– 24,655
	1983	140,277	290,313	380,421	811,012	
Bridger-Teton	1984	149,718	26,746	694	177,158	– 137,460
	1983	188,782	101,910	23,926	314,618	
Caribou*	1984	8,875	108,119	28,112	145,106	+ 64,946
	1983	2,868	27,556	49,736	80,160	
Challis*	1984	615	-	-	615	– 87,765
	1983	79,262	7,613	1,505	88,380	
Dixie	1984	26,124	9,779	9,422	45,325	+ 29,524
	1983	10,027	5,448	326	15,801	
Fishlake	1984	23,108	6,659	2,262	32,029	+ 10,478
	1983	17,197	3,125	1,229	21,551	
Manti-LaSal	1984	38,580	13,569	0	52,149	+ 25,062
	1983	22,855	4,232	0	27,087	
Payette	1984	271,627	133,557	58,592	463,776	– 5,226
	1983	69,684	132,875	266,444	469,002	
Salmon	1984	3,768	9,753	1,849	15,370	– 262,297
	1983	235,040	37,117	5,510	277,667	
Sawtooth	1984	102,779	31,042	10,688	144,509	+ 55,830
	1983	49,191	36,545	2,942	88,679	
Targhee	1984	173,444	212,113	91,409	476,966	– 83,613
	1983	64,896	312,858	182,825	560,579	
Wasatch-Cache	1984	5,850	2,025	0	7,875	– 6,255
	1983	10,525	3,606	0	14,130	
Grand Teton National Park	1984	.....	.....	.....	Not Flown	
	1983	3,576	3,687	8,763	16,026	
R-4 TOTALS	1984	1,095,430	861,784	390,021	2,347,235	– 437,454
	1983	894,180	966,885	923,627	2,784,692	

*Only portions of Forest flown; actual acreage figures are probably considerably higher.

TABLE 4. Status of western spruce budworm by State during 1984.

IDAHO

Land Ownership Class	Outbreak Area (Thousand Acres)
National Forest	1,910.7
Other Federal	0.3
State and Private	121.7
TOTAL	2,032.7

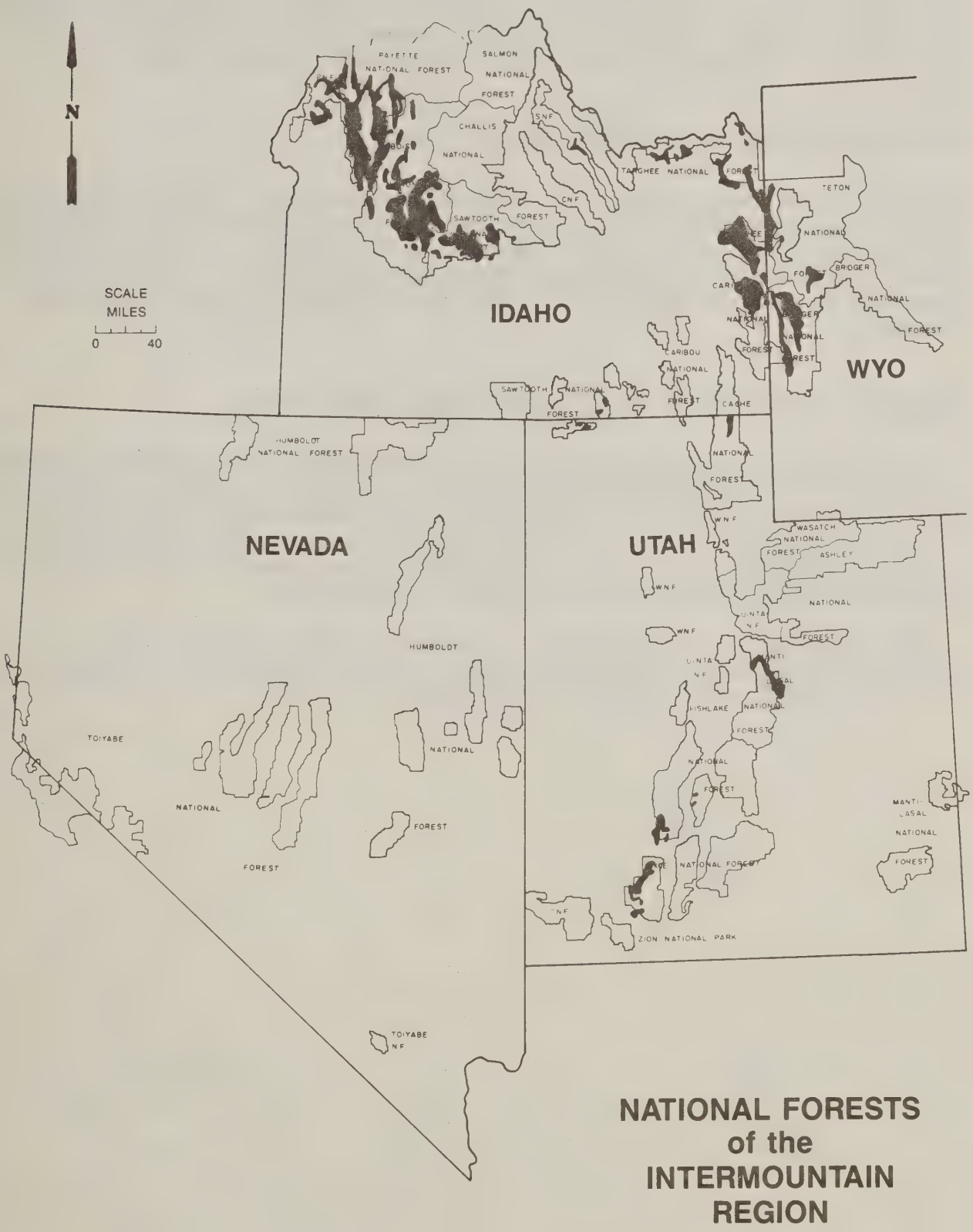
UTAH

National Forest	119.6
Other Federal	-
State and Private	17.8
TOTAL	137.4

WYOMING

National Forest	164.7
Other Federal	12.5
State and Private	0.01
TOTAL	177.2

FIGURE 4. Areas defoliated by western spruce budworm in Region 4 during 1984.



Sugar Pine Tortrix, *Choristoneura lambertiana* (Busck) and Pine Needle Sheathminer, *Zelleria haimbachi* Busck

On the Targhee National Forest in southeastern Idaho these insects defoliated lodgepole pine on approximately 60,000 acres. Activity was concentrated along the west slope of the Teton Mountains (figure 5). Naturally occurring parasites were actively attacking the two defoliators and should contribute to population collapse. Scattered pockets of defoliation by these pests also occurred on the Boise, Payette, Sawtooth, and Caribou National Forests.

Pine Butterfly, *Neophasia menapia* (Felder & Felder)

While numerous white butterflies were again conspicuous on the Boise, Payette, and Salmon National Forests, defoliation declined dramatically. Serious ponderosa pine defoliation was identified on 2,800 acres this year compared to 16,000 acres last year. Defoliation occurred near Crown Point on the Boise National Forest (figure 6). Preliminary evaluations conducted in the fall of 1984 indicate population collapse is due to regulatory pressure from predators and parasites.

Douglas-fir Tussock Moth, *Orgyia pseudotsugata* (McDunnough)

As predicted by evaluations conducted during the fall of 1983, the four-year-old Douglas-fir tussock moth infestation in the Owyhee Mountains in southwestern Idaho collapsed with no current year defoliation being recorded during aerial surveys. Single tree and group mortality of Douglas-fir apparently resulting from previous activity by the defoliator were identified in areas which had been moderately to heavily defoliated for at least three consecutive years. Defoliation by this insect was not noted elsewhere in the Region.

Pheromone detection traps were placed on the Boise, Payette, Salmon, and Sawtooth National Forests and State lands around Bellevue, Idaho. Preliminary trap analysis indicates decreased Douglas-fir tussock moth activity throughout southern Idaho.

FIGURE 5. Areas of defoliation by sugar pine tortrix and pine needle sheathminer on the Targhee National Forest during 1984.

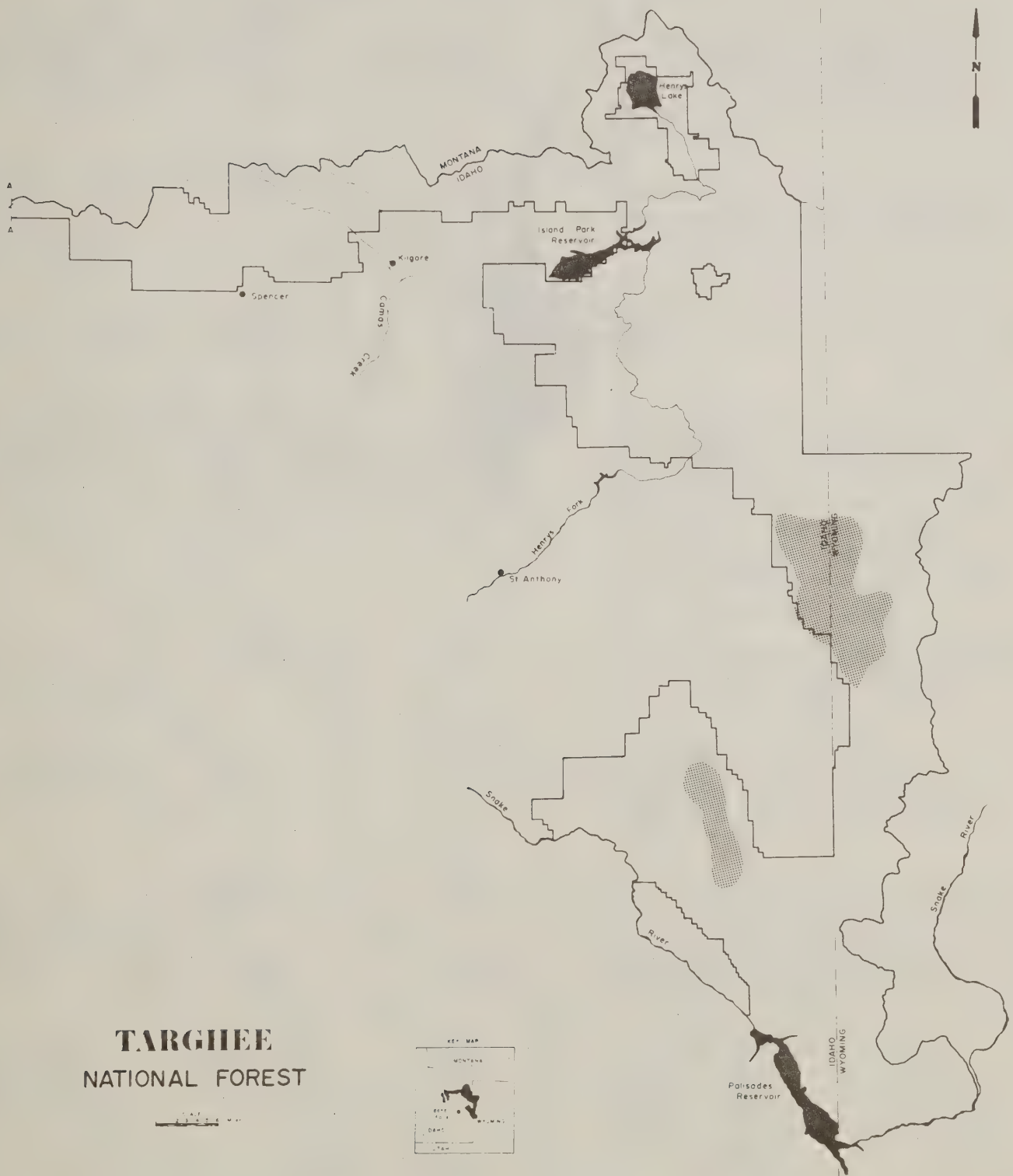
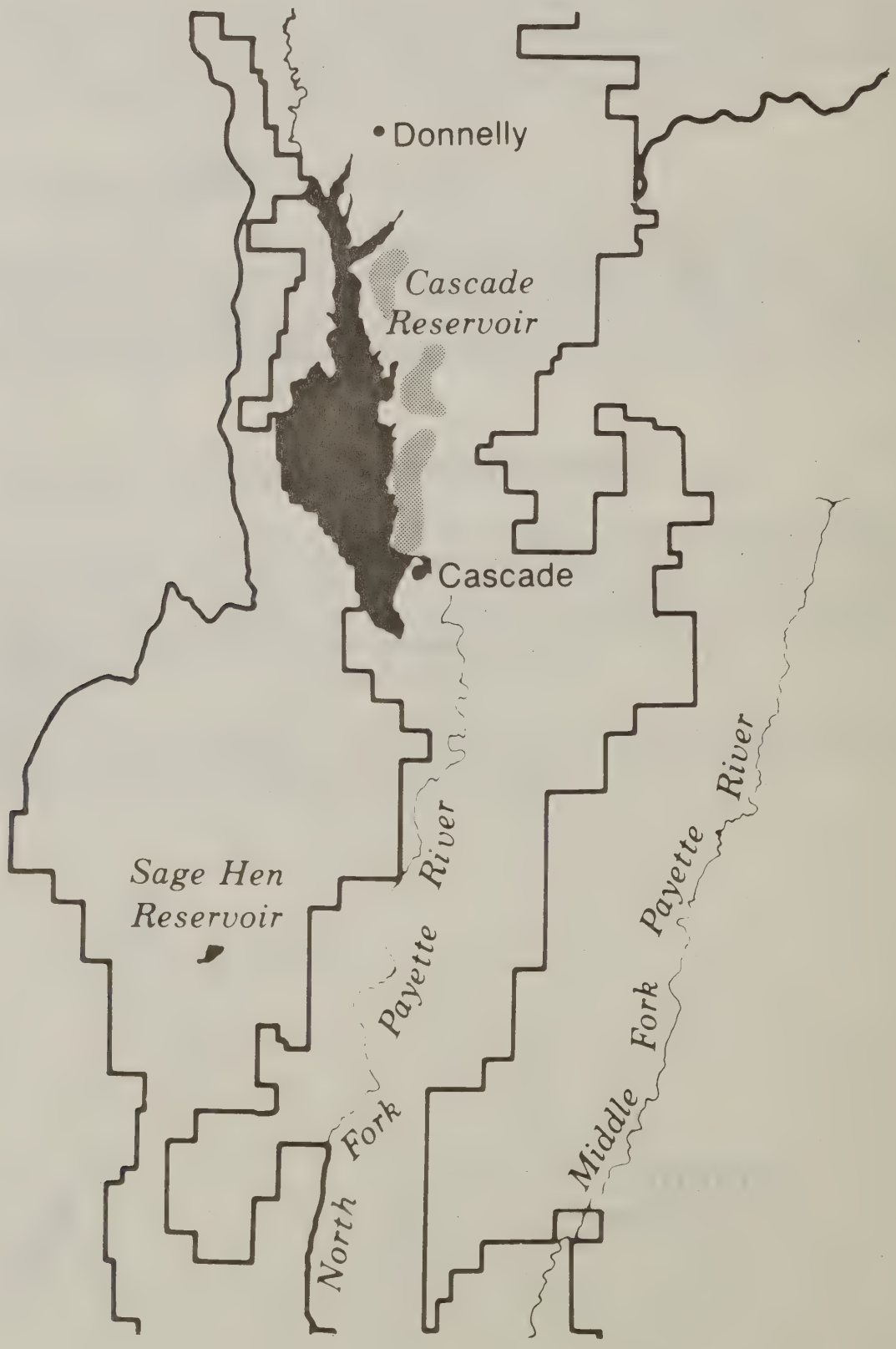


FIGURE 6. Areas defoliated by pine butterfly on the Boise National Forest during 1984.



SUMMARY
Forest Insect and Disease Conditions
Intermountain Region

Insect	Host	Location	Remarks
Douglas-fir beetle *Dendroctonus pseudotsugae* Hopk.	Douglas-fir	Idaho, Utah, Wyoming	Group killing of Douglas-fir occurred on the Bridger-Teton, Boise, and Payette NF's. Activity generally increased with 3,720 trees being killed in 1984.
Douglas-fir tussock moth *Orgyia pseudotsugata* (McD.)	Douglas-fir	Idaho	No current defoliation observed, but tree mortality resulting from previous defoliation noted.
Larch casebearer *Coleophora laricella* (Hbn.)	Western larch	Idaho	Infrequent observations noted in 1984.
Mountain pine beetle *Dendroctonus ponderosae* Hopk.	Lodgepole, ponderosa, and other pines	Idaho, Utah, Wyoming	Mountain pine beetle killed approximately 3.3 million trees in 1984. Populations increased on the Boise, Bridger-Teton, Sawtooth, and Targhee NF's. A major epidemic continues to cause extensive mortality on the Ashley and Wasatch NF's in northeastern Utah.
Pine butterfly *Neophasia menapia* (Felder & Felder)	Ponderosa pine	Idaho	Light to moderate defoliation occurred over 2,800 acres on the Boise NF. Populations are declining.
Pine engraver beetle *Ips pini* (Say)	Pines	Idaho	A slight decrease in activity was noted. Fewer than 1,000 trees were killed on the Boise, Payette, and Salmon NF's.
Pine needle sheathminer *Zelleria haimbachi* Busck	Lodgepole pine	Idaho	New infestations of this insect along with the sugar pine tortrix were noted defoliating lodgepole pine on over 60,000 acres of the Targhee NF in southeastern Idaho.
Spruce beetle *Dendroctonus rufipennis* (Kby.)	Engelmann spruce	Idaho, Utah	Localized infestations continue to cause minimal mortality on the Bridger-Teton, Fishlake, Manti-LaSal, Payette, and Uinta NF's where 328 trees were killed.

SUMMARY (Cont.)
Forest Insect and Disease Conditions
Intermountain Region

Insect	Host	Location	Remarks
Sugar pine tortrix *Choristoneura lambertiana* (Busck)	Pines	Idaho	This insect along with the pine needle sheathminer defoliated lodgepole pine on 60,000 acres of the Targhee NF in southeastern Idaho.
Western pine beetle *Dendroctonus brevicomis* LeConte	Ponderosa pine	Idaho, Nevada	Very few trees were killed by this insect.
Western pineshoot borer *Eucosma sonomana* Kearfott	Ponderosa pine	Idaho	Scattered infestations were noted throughout southern Idaho.
Western spruce budworm, *Choristoneura occidentalis* Free.	True firs, Douglas-fir, western larch, spruce	Idaho, Utah, Wyoming	Confiers on approximately 2.3 million acres were defoliated in 1984. Infestations expanded on the Dixie, Fishlake, Manti-LaSal, and Sawtooth NF's. Reductions in defoliation occurred on the Boise, Bridger-Teton, Challis, Payette, Salmon, Targhee, and Wasatch-Cache NF's.
Western tussock moth, *Orgyia vetusta gulosa* Hy. Edwards	Willows, Ceanothus	Idaho	Activity was insignificant in 1984.

PATHOLOGY

Douglas-fir needle cast, *Rhabdocline pseudotsugae* Syd.

Endemic levels of Doulgas-fir needle cast occurred in Douglas-fir stands throughout southern Idaho. Infection severity increased to moderate levels most noticeably on three Ranger Districts in southern Idaho this year; the Weiser, New Meadows, and McCall Ranger Districts, Payette National Forest.

Elytroderma disease, *Elytroderma deformans* (Weir) Darker

Ponderosa pine across southwestern Idaho has experienced light to moderate Elytroderma infection throughout the 1980's. Each year, however, infection appears to intensify in a few areas. In 1984 severe infection was noted on the Boise National Forest; east of the Crawford Guard Station, Cascade Ranger District, and along Manhattan Creek, Idaho City Ranger District.

Lodgepole pine needle cast, *Lophodermella concolor* (Dearn.) Darker

Areas of noticeable infection develop each year throughout southern Idaho forests. In 1984 severe needle discoloration caused by this pest occurred in contiguous, densely stocked lodgepole pine stands around the Stanley area of the Sawtooth National Recreation Area. Moderate amounts of infected foliage were noted on the adjacent Yankee Fork Ranger District, Challis National Forest.

Salt damage

Magnesium chloride, applied to roadways to reduce dust, damaged single leaf pinyon pine and juniper on the Humboldt National Forest. Affected trees showed crown dieback and foliar tip burning. Foliar chloride analysis revealed significantly higher concentrations of this ion in discolored foliage than in undiscolored foliage.

Comandra blister rust, *Cronartium comandrae* Pk.

This stem rust is often found infecting lodgepole pine of all sizes in southcentral and southeastern Idaho, northern Utah, and western Wyoming forests. It was identified in 1984 on ponderosa pine seedlings and saplings in the Seid Creek area of the Weiser Ranger District, Payette National Forest. Infections resulted in top, branch, and entire-tree mortality.

Dutch elm disease, *Ceratocystis ulmi* (Buisman) C. Moreau

Forty-two disease-infected trees were identified in Boise, Idaho. This is a significant increase over the annual average of 6 trees. The increase is attributed to a build-up of the fungus vector, elm bark beetle, in elm wood debris created during severe summer windstorms.

Limb rust, *Peridermium filamentosum* Pk.

Concentrations of limb rust infections on ponderosa pine were identified in a 60- to 70-year-old stand on the Aquarius Plateau, Dixie National Forest. Foresters are concerned about the impact of this disease in immature stands. Studies and surveys are being initiated to determine the rust's distribution and impact.

Dwarf mistletoes, *Arceuthobium* spp.

More Ranger Districts each year are developing long range plans for dwarf mistletoe suppression. Primary interest is in protecting partially or fully regenerated stands which are threatened by the parasitic plants. Information gathering for presuppression surveys, suppression projects, and post-suppression reviews was conducted on eleven National Forests. Accomplishments are reported in table 5.

TABLE 5. Acres of presuppression surveys and suppression projects conducted in 1984.

National Forest	Presuppression Survey Acres	Suppression Project Acres	Post-Suppression Review Acres
Ashley	596	160	386
Boise	60,200	1,402	54
Bridger-Teton	1,540	270	0
Caribou	6,300	170	170
Dixie	92	500	362
Payette	19,912	279	177
Salmon	35,300	29	40
Sawtooth	0	27	27
Targhee	54,824	1,540	0
Toiyabe	130	260	82
Wasatch	13,700	0	100
TOTAL	192,594	4,637	1,398

Hail damage

Hailstones caused extensive branch wounding and flagging to sapling- and pole-sized subalpine fir and lodgepole pine over 7,300 acres in the Fenster Creek area northwest of Salmon, Idaho. Field evaluations revealed no mortality due to the storm.

Annosus root disease, *Fomes annosus* (Fr.) Cke.

This fungus frequently becomes established in new areas by invading freshly exposed stumps. This year, *F. annosus* was found killing ponderosa pine, lodgepole pine, Douglas-fir, white fir, grand fir, and subalpine fir in several new locations. Ponderosa pine seedling and sapling mortality was found near Ola Summit on the Emmett Ranger District, and Pine Gulch on the Mountain Home Ranger District, Boise National Forest; and in the East Branch Weiser River drainage on the New Meadows Ranger District, Payette National Forest. Mortality of lodgepole pine saplings and subalpine fir saplings and poles was also found within the East Branch

Weiser River drainage on the New Meadows Ranger District. Douglas-fir sapling mortality was found near Moorehead Flat on the New Meadows Ranger District; white fir mortality was detected in a campground on the Spanish Fork Ranger District, Uinta National Forest; and grand fir sapling and pole mortality was found along the Round-up Creek road on the New Meadows Ranger District.

Armillaria root disease, *Armillaria mellea* (Vahl. ex Fr.) Quel.

Armillaria mellea appears to be a weak parasite in southern Idaho forests where it is occasionally associated with small areas of mortality in various conifer species. One small ponderosa pine mortality center involving five-to-ten dwarf mistletoe-infected saplings and poles was detected near Ola Summit on the Emmett Ranger District, Boise National Forest. In Utah this fungus was found associated with mountain pine beetle activity in lodgepole pine.

Red-brown butt rot, *Phaeolus schweinitzii* (Fr.) Pat.

Old growth Douglas-fir in southern Idaho is commonly infected by the red-brown butt rot fungus. The fungus is often associated with other root pathogens, primarily *Inonotus tomentosus.* Detection is based primarily on occurrence of the dark-brown sporophores found at the base of infected trees; occasionally, decay is detected in windthrown trees or in stumps remaining after harvest.

Extensive amounts of decay were found throughout mature to overmature Douglas-fir stands in the Beaver Creek drainage on the Cobalt Ranger District, Salmon National Forest. Douglas-fir beetle was frequently associated with mortality of severely decayed trees. Decay incidence was also noted in the Round-up Creek drainage on the New Meadows Ranger District, Payette National Forest; and in McGarry Canyon and Picnic Hollow areas on the Dubois Ranger District, Targhee National Forest.

Tomentosus root disease, *Inonotus tomentosus* (Fr.) Gilb.

Windthrow and mortality caused by this fungus was found with increasing frequency in Engelmann and blue spruce stands on the Dixie National Forest. The disease appears to be widespread in spruce stands on the Aquarius Plateau which regenerated following a spruce beetle epidemic 60 to 70 years ago. Infection may also be affecting growth and predisposing spruce to bark beetle attack. A demonstration area was established in Peterson Grove on the Dixie National Forest to show effects of different treatments on spread of the disease.

The fungus is frequently detected in roots of windthrown or dozer uprooted Douglas-fir in southern Idaho and occasionally in subalpine fir in southwestern Idaho.

SUMMARY
Forest Insect and Disease Conditions
Intermountain Region

Disease	Host	Location	Remarks
Annosus root disease *Fomes annosus* (Fr.) Cke.	Ponderosa pine, lodgepole pine, Douglas-fir, true firs	Idaho, Utah, Wyoming	Detection of *F. annosus* infections increased throughout the Region. Infection often results in mortality of young pines and Douglas-fir and in butt rot of true firs.
Armillaria root disease *Armillaria mellea* (Vahl. ex Fr.) Quel.	Douglas-fir, grand fir, ponderosa pine, lodgepole pine	Idaho, Utah, Wyoming	Identified killing five to ten ponderosa pine saplings on the Boise NF. Also found on roots of mountain pine beetle-killed lodgepole pine on the Wasatch and Bridger-Teton NF's.
Aspen trunk rot *Phellinus tremulae* (Bond) Bond & Boriss	Aspen	Idaho, Utah, Wyoming, Nevada	Decay is prevalent on the Sawtooth NF; also detected in most aspen stands throughout the Region.
Comandra rust *Cronartium comandrae* Pk.	Lodgepole pine, ponderosa pine	Idaho, Utah, Wyoming	Causes topkill of lodgepole pine in southeastern Idaho, northern Utah, and western Wyoming. Infections on ponderosa pine regeneration on the Payette NF were detected.
Cytospora canker *Cytospora chrysosperma* Pers. ex Fr.	Aspen	Idaho, Utah, Wyoming	Common on aspen throughout its range. Causes mortality of branches, main stems and entire trees, particularly those previously infected with Marssonina blight.
Dasyscypha canker *Dasyscypha* sp.	Ponderosa pine, lodgepole pine	Idaho	Scattered incidence in southern Idaho on sapling-sized pine, particularly those being damaged by snow.
Dothistroma needle blight *Dothistroma pini* Hulb.	Ponderosa pine	Idaho	Noted in only one area in southern Idaho: the confluence of the Middle Fork Weiser River and Lightning Creek.
Douglas-fir needle cast *Rhabdocline pseudotsugae* Syd.	Douglas-fir	Idaho	Moderate to severe infection levels on the Weiser, New Meadows, and McCall RD's, Payette NF. Endemic infection levels elsewhere in southern Idaho.
Dutch elm disease *Ceratocystis ulmi* (Buism.) C. Mor.	American elm	Idaho, Utah	Increased infection and subsequent mortality detected in and around Boise, Idaho. Forty-two infected trees died.

Disease	Host	Location	Remarks
Dwarf mistletoes *Arceuthobium* spp.	Douglas fir, ponderosa pine, lodgepole pine, western larch, Jeffrey pine	Idaho, Utah, Wyoming, Nevada	Continued to be the most widespread and frequently observed pests in the Intermountain Region. Suppression projects removed infected overstory trees from 4,637 acres on ten National Forests.
Elytroderma disease *Elytroderma deformans* (Weir) Darker	Ponderosa pine	Idaho	Occurrence is coextensive with host distribution in southwestern Idaho. High levels of infection were noted east of Crawford Guard Station on the Cascade RD, and along Manhattan Creek on the Idaho City RD, Boise NF.
Fir broom rust *Melampsorella caryophyllacearum* Schroet.	Subalpine fir	Idaho, Utah, Wyoming	Infections occur scattered throughout the host type; but very high infection levels occur in some areas including the Cassia Division of the Sawtooth NF.
Greybeard *Lophodermium* spp.	Ponderosa pine	Idaho	Scattered incidence on pole-sized and larger ponderosa pine on the Boise and Payette NF's.
Hail damage	Subalpine fir, lodgepole pine	Idaho	Over 7,300 acres of branch flagging resulted from an early August hail storm in the Fenster Creek area northwest of Salmon, Idaho.
Indian paint fungus *Echinodontium tinctorium* (E. & E.) E. & E.	Grand fir, white fir	Idaho, Nevada	Common in old growth stands of true fir.
Lodgepole pine needle cast *Lophodermella concolor* (Dearn.) Darker	Lodgepole pine	Idaho	Moderate to heavy infection was noted around the Stanley, Idaho, area of the Sawtooth Nat. Rec. Area and on the Challis NF. Infection was of incidental occurrence elsewhere.
Limb rust *Peridermium filamentosum* Pk.	Ponderosa pine	Utah	High infection frequency was noted in stands on the Dixie NF.
Marssonina blight *Marssonina populi* (Lib.) Magn.	Aspen	Idaho, Utah, Wyoming	Scattered incidence of light to moderate infection intensity was noted throughout host type, with the exception of heavy defoliation of some clones in Utah.
Meria needle disease *Meria laricis* Vuill.	Western larch	Idaho	Incidence and severity of infection on the Boise and Payette NF's appear to be increasing after several years of very low incidence. The most notable occurrence was in pole-sized stands on the east face of West Mtn. (Cascade RD, Boise NF) where a combination of factors including frost, budworm, and *Meria laricis* caused severe foliage discoloration.

Disease	Host	Location	Remarks
Needle rust of fir *Pucciniastrum* spp.	True firs	Idaho	Infection remained at light levels on firs in southwestern Idaho.
Needle rust of pinyon pine *Coleosporium crowellii* Cumm.	Pinyon pine	Nevada	Severe infection of pinyon pine by this pest was observed in House Canyon on the Toiyabe NF.
Red-brown butt rot *Phaeolus schweinitzii* (Fr.) Pat.	Douglas-fir, ponderosa pine	Idaho	Decay is common throughout forests of southern Idaho, especially in trees over 200 years old. This fungus is often found associated with other root pathogens and bark beetles.
Red ring rot *Phellinus pini* (Thore: Fr.) Pilat.	True firs, pines, spruce, Douglas-fir, western larch	Idaho, Utah, Wyoming	Usually found in butts and stems of infected hosts in Idaho. Found on spruce in southern Utah and lodgepole pine in western Wyoming.
Salt damage	Pinyon pine, juniper	Nevada	Use of dust abatement salt, magnesium chloride, caused foliar tip burn and crown dieback on the Humboldt NF.
Spruce broom rust *Chrysomyxa arcostaphyli* Diet.	Engelmann spruce	Idaho, Utah, Wyoming	Scattered throughout host type.
Stalactiform rust *Cronartium coleosporioides* Arth. f. *coleosporioides*	Lodgepole pine	Idaho, Utah, Wyoming	Occasional localized occurrence throughout the host type in southern Idaho, northern Utah, and western Wyoming.
Subalpine fir needle cast *Lirula* sp.	Subalpine fir	Idaho	Pockets of infected trees scattered along the North Fork of the Payette River, Payette NF.
Tomentosus root disease *Inonotus tomentosus* (Fr.) Gilb.	Subalpine fir, Douglas-fir, spruce	Idaho, Utah	Decay is often found in southern Idaho, frequently in conjunction with *Phaeolus schweinitzii* in windthrown Douglas-fir. It was associated with decline and windthrow of subalpine fir on the Dubois RD, Targhee NF. Infection of blue and Engelmann spruce on the Dixie NF results in group mortality and windthrow.
Western gall rust *Endocronartium harknessii* (J. P. Moore) Hirat.	Lodgepole pine, ponderosa pine	Idaho, Utah, Wyoming	Occurs throughout host types where infection incidence varies from very light to very heavy.
Western pine aster rust *Coleosporium asterum* (Diet.) Syd.	Lodgepole pine	Idaho	Occasional infections were noted throughout the host type.

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